Calculus AB Schedule--Unit 2/Chapter 2 Derivatives

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 3				*7-Sep*	*8-Sep*
Lesson				2.1 Rates of Change and the Derivative	2.1 Rates of Change and the Derivative
HMWK				**HW1**--p.170 #45, 49a, AP Practice #7, Video on Definition of a Derivative	**HW2**--p.168 #8a, 11a,17b,25, p.169 #39,51 AP Practice #4,8

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 4	*11-Sep*	*12-Sep*	*13-Sep*	*14-Sep*	*15-Sep*
Lesson	2.2 The Derivative and Its Properties	***1/2 DAY*** 2.3 Derivative of a Polynomial and e^x	2.3 Derivative of a Polynomial and e^x **Quiz 2.1 & 2.2**	2.3 Derivative of a Polynomial and e^x	2.2 Differentiability
HMWK	**HW3**--p.169 AP Practice #6, p.179 #13,15,19,55,57, 59,61,63	**Study for Quiz 2.1 & 2.2**	**HW4**--p.190 #7,12,14,19,35ab p.193 AP Practice #1,11	**HW5**--p.190 #37ab,47ce,51,74 Calculator p.190 #63a, p.193 AP Practice #8, Video on Differentiability	**HW6**--p.179 #20,21,39,44, p.182 AP Practice #2,7

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 5	*18-Sep*	*19-Sep*	*20-Sep*	*21-Sep*	*22-Sep*
Lesson	2.2 Differentiability	***LATE START*** 2.2 Differentiability	2.4 Differentiating the Product of Two Functions	2.4 Differentiating the Product of Two Functions **Quiz 2.3 & 2.2**	2.4 Differentiating Higher Order Derivatives
HMWK	**HW7**--p.179 #24, 49,72, p.182 AP Practice #3,6,9	**HW8**--(make sure to write Calculus reasons, not just answers only) p.179 #25,31,32, 33,34,60, p.182 AP Practice #1,11	**HW9**--p.202 #9,17, 45,73ab,81a, p.206 AP Practice #4 **Study for Quiz 2.3 & 2.2**	**HW10**--p.202 #23,37,69ab,81c, Video on Particle Motion	**HW11**--p.203 #57,93abc, p.207 AP Practice #6

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 6	*25-Sep*	*26-Sep*	*27-Sep*	*28-Sep*	*29-Sep*
Lesson	2.4 Differentiating Higher Order Derivatives	***LATE START*** 2.4 Differentiating Higher Order Derivatives	2.4 Differentiating Higher Order Derivatives	2.5 Derivatives of Trigonometric Functions	2.5 Derivatives of Trigonometric Functions
HMWK	**HW12**--p.193 AP Practice #3, p.205 #94abc, Calculator p.203 #83	**HW13**--AP Particle Motion Problems	**HW14**--AP FRQ Problems	**HW15**--p.212 #5,15,19,31,45, Calculator #55	**HW16**--p.214 AP Practice #1,2,3, 4,6,7,8,9

Calculus AB Schedule--Unit 2/Chapter 2 Derivatives

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 7	*2-Oct*	*3-Oct*	*4-Oct*	*5-Oct*	
Lesson	*Unit 2 REVIEW*	***LATE START*** **AP Celebration?** *Unit 2 REVIEW*	**Unit 2 TEST**	AP Activity: Unit 2	
HMWK	**HW17**--p.217 #5,10,14,17 (include reasons), 18 (include reasons), 24,33,34,55,62, 67a,71,74,76,77	AP Activity: Unit 1 due Sep 12	**No Additional Homework**	*AP Activity: Unit 2 due Oct 12*	

Calculus AB Schedule--Unit 2/Chapter 2 Derivatives

Monday	Tuesday	Wednesday	Thursday	Friday

UNIT 2: Differentiation

CHA-2
Derivatives allow us to determine rates of change at an instant by applying limits to knowledge about rates of change over intervals.

FUN-2
Recognizing that a function's derivative may also be a function allows us to develop knowledge about the related behaviors of both.

LEARNING OBJECTIVE

ESSENTIAL KNOWLEDGE

CHA-2.A
Determine average rates of change using difference quotients.

CHA-2.A.1
The difference quotients $\dfrac{f(a+h)-f(a)}{h}$ and $\dfrac{f(x)-f(a)}{x-a}$ express the average rate of change of a function over an interval.

CHA-2.B
Represent the derivative of a function as the limit of a difference quotient.

CHA-2.B.1
The instantaneous rate of change of a function at $x=a$ can be expressed by $\lim\limits_{h\to 0}\dfrac{f(a+h)-f(a)}{h}$ or $\lim\limits_{x\to a}\dfrac{f(x)-f(a)}{x-a}$, provided the limit exists. These are equivalent forms of the definition of the derivative and are denoted $f'(a)$.

CHA-2.B
Represent the derivative of a function as the limit of a difference quotient.

CHA-2.B.2
The derivative of f is the function whose value at x is $\lim\limits_{h\to 0}\dfrac{f(x+h)-f(x)}{h}$, provided this limit exists.

CHA-2.B.3
For $y=f(x)$, notations for the derivative include $\dfrac{dy}{dx}$, $f'(x)$, and y'.

CHA-2.B.4
The derivative can be represented graphically, numerically, analytically, and verbally.

CHA-2.C
Determine the equation of a line tangent to a curve at a given point.

CHA-2.C.1
The derivative of a function at a point is the slope of the line tangent to a graph of the function at that point.

CHA-2.D
Estimate derivatives.

CHA-2.D.1
The derivative at a point can be estimated from information given in tables or graphs.

CHA-2.D.2
Technology can be used to calculate or estimate the value of a derivative of a function at a point.

CHA-3
Derivatives allow us to solve real-world problems involving rates of change.

LEARNING OBJECTIVE

ESSENTIAL KNOWLEDGE

CHA-3.B
Calculate rates of change in applied contexts.

CHA-3.B.1
The derivative can be used to solve rectilinear motion problems involving position, speed, velocity, and acceleration.

LIM-3
Reasoning with definitions, theorems, and properties can be used to determine a limit.

LEARNING OBJECTIVE

ESSENTIAL KNOWLEDGE

LIM-3.A
Interpret a limit as a definition of a derivative.

LIM-3.A.1
In some cases, recognizing an expression for the definition of the derivative of a function whose derivative is known offers a strategy for determining a limit.

LEARNING OBJECTIVE

ESSENTIAL KNOWLEDGE

FUN-2.A
Explain the relationship between differentiability and continuity.

FUN-2.A.1
If a function is differentiable at a point, then it is continuous at that point. In particular, if a point is not in the domain of f, then it is not in the domain of f'.

FUN-2.A.2
A continuous function may fail to be differentiable at a point in its domain.

FUN-3
Recognizing opportunities to apply derivative rules can simplify differentiation.

LEARNING OBJECTIVE

ESSENTIAL KNOWLEDGE

FUN-3.A
Calculate derivatives of familiar functions.

FUN-3.A.1
Direct application of the definition of the derivative and specific rules can be used to calculate the derivative for functions of the form $f(x)=x^r$.

FUN-3.A
Calculate derivatives of familiar functions.

FUN-3.A.2
Sums, differences, and constant multiples of functions can be differentiated using derivative rules.

FUN-3.A.3
The power rule combined with sum, difference, and constant multiple properties can be used to find the derivatives for polynomial functions.

FUN-3.A
Calculate derivatives of familiar functions.

FUN-3.A.4
Specific rules can be used to find the derivatives for sine, cosine, exponential, and logarithmic functions.

FUN-3.B
Calculate derivatives of products and quotients of differentiable functions.

FUN-3.B.1
Derivatives of products of differentiable functions can be found using the product rule.

FUN-3.B
Calculate derivatives of products and quotients of differentiable functions.

FUN-3.B.2
Derivatives of quotients of differentiable functions can be found using the quotient rule.

FUN-3.B
Calculate derivatives of products and quotients of differentiable functions.

FUN-3.B.3
Rearranging tangent, cotangent, secant, and cosecant functions using identities allows differentiation using derivative rules.

FUN-3.F
Determine higher order derivatives of a function.

FUN-3.F.1
Differentiating f' produces the second derivative f'', provided the derivative of f' exists; repeating this process produces higher-order derivatives of f.

FUN-3.F.2
Higher-order derivatives are represented with a variety of notations. For $y=f(x)$, notations for the second derivative include $\dfrac{d^2 y}{dx^2}$, $f''(x)$, and y''. Higher-order derivatives can be denoted $\dfrac{d^n y}{dx^n}$ or $f^{(n)}(x)$.